Indiana Energy & Recycling

REDUCING WASTE, BUILDING BUSINESS

Annual Report 2002-03 to the Indiana General Assembly

RE USEFUL RESOURCES
REDUCING WASTE. REWARDING INNOVATION.

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Members of the General Assembly:

The Indiana Department of Commerce's Recycling Market Development Program, administered through the Energy and Recycling Office, has been making a difference in Indiana's recycling industry for over a decade. Through its financial and technical assistance and outreach, the program has helped ensure that Recycling is Working in Indiana for businesses and communities across the state.

The recycling and reuse industry employs over 75,000 people at 1,700 businesses throughout Indiana. Among these are businesses that manufacture products from recycled plastic, make mats from recycled rubber, create mulch from discarded pallets, and refurbish old electronic components. The Indiana Department of Commerce is committed to supporting these businesses and increasing our efforts to encourage Indiana companies to use recyclables in manufacturing and to reduce waste. Commerce is also committed to bringing recycled products into the mainstream consumer marketplace by encouraging local communities to buy recycled.

The Indiana Department of Commerce's Recycling Market Development Program offers loans, grants, technical assistance, and informational tools to Indiana businesses and communities to not only improve recycling and waste reduction, but to improve Indiana's economic development capabilities as well. This fiscal year alone, four projects were approved in FY 2002–2003 for loans totaling $995,000, leveraging over $995,000 in private investment. These projects will divert more than 63,500 tons of material from disposal, save almost 9 Mmbtu's and create 26 new jobs. Also this year, 27 grant projects were approved totaling $310,037. Commerce's new structure, with 12 regional offices around the state, has helped bring these valuable services to more businesses and communities this year.

Commerce continues to promote the economic and environmental benefits of waste reduction and recycling through improved programs and technical assistance. An increasing number of companies are finding that recycling and reducing waste can and should be part of their daily business, as it helps keep them competitive, efficient and responsible. These companies are leading the way in new technologies and resource efficiency practices, as well as creating quality jobs for Hoosiers. Your continued support of these important programs is appreciated. Together, we can build a stronger economy and provide a more sustainable environment for Hoosiers.

Sincerely,

Joseph E. Kernan
Governor

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This report is submitted in compliance with IC 4-4-3-8(c), which requires that "The department shall submit a report to the general assembly before October 1 of each year concerning the availability of and location of markets for recycled products in Indiana." The Indiana General Assembly charged the Indiana Department of Commerce with recycling market development in 1990 through amendments to IC 4-23-5.5.

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EXECUTIVE SUMMARY

Recycling is working in Indiana. The recycling and reuse industry in Indiana contributes significantly to waste reduction, job creation and revenue generation in the state, in addition to decreasing energy consumption, greenhouse gas (GHG) emissions and the amount of waste going to landfills. The Indiana Department of Commerce's Energy and Recycling Office works to support and expand this industry sector through financial and technical assistance in order to help Indiana achieve its 50 percent waste-reduction goal and to build Indiana's economy.

Between 1990 and 2002, Indiana's population grew from 5,544,159 to an estimated 6,160,000 (Source: U.S. Census Data). Indiana reduced the amount of material going to landfills by approximately 39 percent during that same period (Source: Indiana Department of Environmental Management). While great strides have been made recently, we must work hard to ensure that Hoosier communities and businesses continue to make recycling a priority. Certain waste streams, including electronics, mixed glass and scrap tires, continue to offer challenges to both collection and market development, and require focused efforts to assure that the State moves forward on reducing the prevalence of these wastes in landfills. The Energy and Recycling Office is committed to reducing waste while encouraging the success of recycling businesses in Indiana.

The Indiana Department of Commerce encourages Indiana businesses to reduce waste, increase recycling and manufacture and use recycled-content products and industrial feedstocks. The Energy and Recycling Office helps businesses meet these goals by offering loans, grants and technical assistance, always working toward its mission "to promote the efficient, economic and environmentally responsible use of energy and natural resources."

Recycling and waste reduction saves energy in the manufacturing process and in the extraction of natural resources as well as reduces GHG emissions produced in the extraction, manufacturing and disposal stages. New tools have been developed that allow solid waste officials to more clearly calculate these exact benefits. National and state-specific studies also prove that recycling is doing much more than conserving natural resources. Recycling creates jobs, encourages investment and creates revenue for the state. The industry is an important and significant part of Indiana's economy, representing 1,700 establishments that employ approximately 75,000 people in Indiana, with annual revenues of $19 billion and payroll of approximately $3 billion (Source: Recycling Economic Information Study, 2001, based on 1999 figures). The recycling and reuse industries involve the collection, processing, remanufacturing and sale of many materials such as paper, metals, plastics, computers, electronics and other industrial and consumer scrap. The recycling manufacturing sector is particularly strong in Indiana.

To assist Indiana in supporting and expanding this important sector of the economy, the Energy and Recycling Office has increased the number of tools available and has provided loan and grant funding for hundreds of Indiana businesses and communities. The expanded financial assistance program, launched in fiscal year 2000–2001, has allowed significantly more businesses and local governments around the state to receive financial help for increasing recycling activities and purchasing recycled-content products, thus diverting thousands more tons of material from Indiana landfills. Technical assistance tools, including the Recycled Product Showroom, Market Directory for Recyclables and the Materials Available Database are available as user-friendly databases on the Commerce Recycles website: **www.CommerceRecycles.in.gov**. This fiscal year brought a reorganization of the Indiana Department of Commerce, including the creation of 12 regional district offices. The reorganized structure has allowed the Energy and Recycling Office to more effectively reach out to potential customers and ensuring that these tools become available to more Hoosiers.

EXECUTIVE SUMMARY

A team of Commerce staff and other experts gives all financial assistance projects a thorough technical, financial and business plan review. Applicants that meet all program criteria are presented to the Recycling and Energy Development Board for a funding decision (IC 4-23-5.5). Many high-quality applications were reviewed this year, and the Recycling and Energy Development Board approved four projects in fiscal year 2002–2003 for loans totaling $995,000, leveraging over $995,000 in private investment. These projects will divert more than 63,500 tons of material from disposal, save almost 9 Mmbtu's and create 26 new jobs. The Energy and Recycling Office's grant program also had an active year, approving 27 grants totaling $310,037.

This fiscal year has brought a legislative review of state and local solid waste and recycling programs, as the legislature examines the results of 10-year-old solid waste legislation that set up state recycling goals, state recycling programs and local solid waste management districts. Commerce hopes that this endeavor will allow the state to fine tune the waste reduction and recycling efforts to the current state of solid waste in Indiana. Also this fiscal year, a statewide Electronics Scrap Action Program (ESAP) was launched, sponsored by the Indiana Recycling Coalition and funded in part by the Indiana Department of Environmental Management. Commerce has taken a lead role in this effort, which aims to bring public, private and non-profit entities together that have interest in electronics scrap management in order to find unique ways to create a sustainable and environmentally friendly electronics scrap management infrastructure in Indiana. The next year will see the ESAP project gain significant momentum.

The Energy and Recycling Office continues to expand its base of partner organizations involved in encouraging waste reduction. This coming year will bring the continued promotion of financial and technical assistance along with the improvement of the Office's successful programs.

INTRODUCTION

The Indiana Department of Commerce seeks to develop Indiana's economy through the support of new and existing businesses. The mission of Commerce's Energy and Recycling Office is to "promote the efficient, economic and environmentally responsible use of energy and natural resources."The Office's efforts include assisting the state in reducing the amount of material incinerated and disposed in Indiana landfills, as well as developing and promoting markets for recyclable items (IC 4-4-3-8).

Programs that increase waste diversion have been implemented successfully through national, state and local efforts. Indiana has achieved a 39 percent waste diversion rate between 1990 and 2002 (Source: Indiana Department of Environmental Management). This level of waste reduction is similar to many states across the nation. Indiana has moved forward significantly since 1990, when its waste reduction programs began, and the State continues to develop and implement programs that help us increase waste diversion while addressing the needs of businesses and communities in these changing times. Business efforts to reduce waste and make recycled-content products assist Indiana in saving landfill space and also boost the business environment by saving energy, building jobs and reducing reliance on virgin materials. Recycling means business in Indiana.

This report discusses Commerce's strategy for increasing markets for recyclables, defines priority materials for market development, provides an overview of activities during the past year, discusses the current markets for Indiana recyclables and addresses the economic and environmental impact of recycling, as well as current happenings related to recycling in Indiana.

If you would like to receive only an electronic copy of next year's annual report, please send an e-mail to Tiffany Sorge in the Energy and Recycling Office: tsorge@commerce.state.in.us.

STRATEGY FOR WASTE REDUCTION AND MARKET DEVELOPMENT

The Indiana Department of Commerce's Energy and Recycling Office is challenging Indiana businesses to reduce waste, increase reuse and recycling, and use and manufacture recycled-content products and industrial feedstocks. To support and encourage these efforts, the Office provides technical and financial assistance to businesses and communities throughout the state.

This year, Commerce operated with a new structure. In addition to a more efficient internal agency structure, 12 regional offices were opened to help better serve communities around the state. The Recycling Promotion and Assistance Fund grant and loan program saw an increase in applications to the program, and many exciting projects were funded. As a result of these projects, companies will be creating new recycled-content products and investigating new ways to use recycled materials and reduce waste. Communities will be able to purchase recycled products for use in local construction, beautification and education projects. The program continues to seek new marketing opportunities and new ways to integrate recycling projects with other Commerce programs. Updated technical assistance tools cater to those seeking markets to recyclables, recycled products or available recyclable material supply. Also this year, Commerce began work on other exciting programs, including the Indiana Electronics Scrap Action Program, an effort to bring stakeholders together to find solutions to managing electronics scrap in the state.

In the coming year, we will build on these successes by promoting our various programs, expanding business participation, developing additional technical assistance tools, participating in state-wide efforts to promote recycling and waste reduction, and continuing to adjust our efforts to effectively build markets for recyclables in Indiana.

FINANCIAL ASSISTANCE TOOLS

The expanded financial assistance program now allows businesses more flexibility when applying for project support. The "Financial Assistance" section later in this report provides details about the successes this program has had over the past three years it has been in place.

The financial assistance program was expanded in 2000 to include both loans and grants, and to allow businesses more flexibility in funding opportunities. This expanded program has been a success, and Commerce continues to examine ways to improve it to best serve its customers.

The Recycling Promotion and Assistance Fund, established by IC 4-23-5.5-14, offers a variety of grants and loans to encourage companies to find ways to reduce waste and increase recycling. This program is designed to provide funding assistance for all stages of recycling that bring secondary materials past collection and into the marketplace.

- Grants of up to $6,000 as 50 percent matching funds are available to assist companies in analyzing their waste streams and finding potential ways to reduce waste or increase recycling.
- Grants of up to $100,000 as 50 percent matching funds for research and demonstration projects can assist in testing a new product or process that allows a company to reduce its waste or create a recycled feedstock or product. These grants help assure companies that the proposed process will succeed when fully implemented.
- Projects to reduce waste or increase the manufacturing of recycled-content products or industrial feedstock can receive assistance through zero-percent interest loans of up to $500,000 as 50 percent matching funds

for equipment purchases once the product or feedstock is ready for commercialization. Successful expanding companies are eligible for increased funding levels of up to $1 million as 50 percent matching funds, which is an incentive for successful companies to choose Indiana for their expansion sites.

- To close the recycling loop, Indiana manufacturers can receive grant funding of up to $30,000 as 50 percent matching funds to assist in marketing their recycled-content products, and local governments can receive grant funding of up to $5,000 as 50 percent matching funds to purchase these products for trial or demonstration projects. Products purchased this way are educational tools to be shared within the government agency as well as with the public. These assistance tools are designed to help create successful markets for recyclables in Indiana by bringing recycled materials into the marketplace.

The Energy and Recycling Office's expanded financial tools have taken hold over the past three years, and this year showed the continued completion of successful projects funded through this program (see "Loan and Grant Success Stories" later in this report). The number of applicants to this program continues to increase, and the program continues to see a rise in companies willing to make investments in new technologies and the development of new products. Some companies that put these plans on hold after the events of September 11, 2001, can now afford to move forward with such financial endeavors. The program has seen an increase in communities, schools and local government entities applying for grants to purchase recycled products as a trial or demonstration, suggesting that local governments are facing tighter general budgets for beautification, education, parks and recreation and construction projects, which have forced them to look elsewhere for funds. In some cases, Commerce funding has encouraged these entities to use recycled products where budget restrictions may not have allowed them to purchase even their virgin counterparts. This investment in and education about recycled products in the state continues to expand the markets for these products, thus supporting the businesses that create these products and the collection programs that supply material to these companies.

These financial tools will continue to be used to fund innovative and high-quality projects and will be adjusted when necessary to fit the needs of customers.

COMPREHENSIVE ONLINE TOOLS

The website of the Recycling Program—**www.CommerceRecycles.in.gov**—continues to be updated and expanded to better serve our customers and make technical and financial information more accessible and easier to use: An important tool of the technical assistance program, the **Recyclable Material Market Directory,** is now updated and exclusively available in a searchable format on the website. This directory locates markets for Indiana's recyclables and contains listings for more than 250 brokers, processors and end users. Markets for recyclables can be found on this database via a material search combined with a regional search.
Commerce has also updated and improved a resource for finding recycled-content product vendors, the **Recycled Product Showroom.** This is a showcase of recycled-content products manufactured or distributed in Indiana.
The newest tool, the **Materials Available Directory**, can be a resource for companies seeking feedstock to find it from other companies' scrap material. Companies may list their available materials on this database or search the database for material by accessing the website. Commerce is working to expand this database so that it can be useful for those seeking material supply.

STRATEGY FOR WASTE REDUCTION AND MARKET DEVELOPMENT

In addition to these tools, the website of the Recycling Program offers downloadable information about the financial assistance program as well as downloadable publications such as the Annual Report, the Buy Recycled Indiana Guide and now the Indiana Recycling Economic Information Study and accompanying fact sheet. The site also lists press releases and upcoming events related to the Recycling Program.

These resources will be expanded and promoted in the coming year to increase their effectiveness. Final reports, pictures and success stories, national websites, new online tools and relevant news will continue to be added to the website in the coming year. This information will serve to facilitate technology transfer and public education about reducing waste, recycling and buying recycled. Please visit **www.CommerceRecycles.in.gov** to use these valuable resources.

FOCUS ON ELECTRONIC SCRAP MANAGEMENT

Proper, environmentally friendly management of electronics scrap, or "e-scrap," has become an issue of major importance both nationally and here in Indiana. The Indiana Department of Commerce lists electronic scrap as a priority reusable and recyclable material, and recognizes the importance of finding ways to divert electronic waste from landfills. E-scrap may consist of both solid waste material such as glass, plastic and metal, as well as hazardous materials such as lead. Businesses may not only be concerned about generation and management of e-scrap, but may be interested in the business opportunities that arise from collecting, reselling or recycling the material. Proper management of these materials, as well as utilization of reuse opportunities, ensures that electronics do not harm the environment, but instead create opportunities and business activity for Hoosiers.

This year, Commerce began participation in a statewide effort to bring together key stakeholders in the public, private and not-for-profit sector to find solutions to e-scrap management in Indiana. This effort, supported by Commerce, the Indiana Department of Environmental Management, the Indiana Recycling Coalition, the United States Environmental Protection Agency (U.S. EPA) Region 5 in Chicago and several other public, private and not-for-profit entities, is a two-year effort to define and grow the state's e-scrap management infrastructure in order to minimize the negative environmental impact of e-scrap on the state.

PROMOTING RECYCLING'S ECONOMIC IMPACT

Commerce continues to promote the valuable economic impact that the recycling and reuse industry has on the state, as shown by the 2001 Indiana Recycling Economic Information (IN REI) Study. As communities and businesses seek ways to cut costs, and job creation is a nationwide concern, Commerce emphasizes that investing in recycling and reuse programs and businesses bring revenue, jobs and down-stream economic benefits to the state. Unlike landfilling material, where the economic benefits end when the material is buried, recycling or reusing the material allows it to continue to circulate in the market, generating new jobs, sales revenue and tax revenue for the state.

The United States Environmental Protection Agency continues to promote the National Recycling Economic Information Study (U.S. REI) as well. In the coming year, it is expected that preliminary work will begin on a second round of REI studies, in order to understand how the recycling and reuse industry has changed over the past few years.

STRATEGY FOR WASTE REDUCTION AND MARKET DEVELOPMENT

PUBLIC EDUCATION AND MARKETING

The Energy and Recycling Office continues to work with public and private sectors to increase awareness about waste reduction, reuse and recycling as well as to provide information about financial and technical assistance tools available through the Office. During fiscal year 2002–2003, the Energy and Recycling Office continued to widely distribute the existing marketing material, both via mail, email and the Recycling Program's website. In addition, the 12 newly formed Commerce regional offices help disseminate program information to their local communities. As part of an ongoing effort to best serve its customers and integrate the Energy and Recycling Office materials into the overall look and feel of other Commerce materials, the Office is working with an Indiana marketing company to develop a new logo, updated marketing materials and to find ways to better target its audiences in order to encourage maximum use of existing technical and financial assistance tools.

The Energy and Recycling Office's staff has presented and exhibited information at many conferences, workshops and meetings, including the Association of Indiana Solid Waste Management Districts annual conference, the annual Indiana Recycling Coalition Conference, Earth Day, America Recycles Day and at a national Plastics trade show. In addition, the Office held an annual Buy Recycled Workshop in conjunction with the American Institute of Architects of Indianapolis' Green Products Expo and the Indiana Recycling Coalition Conference. The Workshop, which was open to the public, taught attendees why, how and where to purchase recycled-content products. The Energy and Recycling Office will continue to promote its financial and technical assistance programs as well as the Indiana REI Study through marketing and attending industry meetings.

LEGISLATIVE EXAMINATION OF STATE RECYCLING EFFORTS

During fiscal year 2002–2003, the Legislative Services Agency (LSA) was charged to conduct a study and formulate a report on state recycling and solid waste management efforts, and a legislative Recycling Evaluation Committee has been established to review the report and determine if any recommendations should be made or legislative action taken (per authority from Legislative Council Resolution 01-09 and IC 2-5-21). The report examines efforts of state agencies, solid waste management districts, and localities to meet the legislatively established goal of 50 percent waste diversion by 2001. Commerce's Recycling Market Development Program is examined by this LSA study. During the next fiscal year, the Recycling Evaluation Committee will conduct meetings to discuss the report's findings and ways to improve Indiana's approach to recycling and waste reduction. These efforts offer an opportunity to chart a course for Indiana's future and to examine new areas of necessary focus, such as electronics waste management.

STRATEGY FOR WASTE REDUCTION AND MARKET DEVELOPMENT

NEW PROJECTS AND EVENTS IN FISCAL YEAR 2002–2003:

- Commerce reorganizations and new regional offices
- Expanded Online Recycled Product Showroom
- Kick-off of statewide Electronics Scrap Action Program
- Legislative Services Agency study on state and local recycling programs published; legislative Recycling Evaluation Committee begins review

NEXT STEPS

The strategy for the coming year includes extending our reach so that more companies and communities can find new ways to reduce waste and recycle by utilizing these Energy and Recycling Office tools. The Office will:

- Continue to increase the reach of its financial and technical assistance programs to encompass more communities and larger projects by expanding the grant and loan program and adding more information to the technical assistance tools;
- Assist Indiana recycling entrepreneurs with business, investment and marketing guidance and tools by developing a recycling business assistance guide;
- Promote the impact of the recycling and reuse industry to citizens, economic development officials, the investment community and decision-makers to expand their support of this economic sector;
- Work with Commerce regional offices to develop projects and conduct outreach;
- Work with other agencies, organizations and the private sector to move specific priority materials out of the waste stream;
- Focus on electronics scrap as a priority material by working with stakeholders across the state to improve Indiana's electronics scrap management infrastructure;
- Work to strengthen Indiana's recyclable material markets through workshops and dialogue; and
- Continue to improve the content and accessibility of the Web tools available through the Recycling Program.

PRIORITIES FOR MARKET DEVELOPMENT

The Energy and Recycling Office continues to prioritize building markets for materials that do not currently have strong markets in Indiana and that many times make up a significant portion of the waste stream. Priority recyclables include those that have few markets, are difficult to recycle or are high-volume materials that, if recycled, can significantly impact the waste-diversion rate. Some materials are difficult to recycle because they have a low market value and cannot be shipped great distances. Others are prioritized because of rapid industrial and technological advances that have provided new uses for the material. The Energy and Recycling Office places increased emphasis on priority materials in its technical and financial assistance programs.

Most loan and grant projects awarded this year focused on these priority materials. The $1 Million RPAF Attraction/Expansion Loan provides zero-interest loan funding for successful recycled feedstock or product manufacturers that use priority materials to expand in or relocate to Indiana. The Energy and Recycling Office supports businesses that have been successful at creating markets for priority materials. These businesses bring with them new technologies in recycling that can help Indiana expand its markets for these recyclables.

The priority materials targeted are **computers and electronics, plastics, mixed glass, construction and demolition debris, tires and non-hazardous industrial by-products, including coal combustion materials and foundry sand**. Other materials may also be considered as priority materials on a case-by-case basis. Following is a short discussion on each priority material.

COMPUTERS AND ELECTRONICS:

Obsolete computers and electronic equipment are ever increasing. Many of these items are reusable in other organizations or contain reusable components. If the product is unusable, the components may be separated and potentially recycled. This process can be costly and complicated, as materials may contain hazardous substances and must be dealt with in and environmentally sound manner, but the field is advancing. Commerce supports efforts to keep electronics scrap and any potentially hazardous substances out of Indiana landfills. Recently there has been growing concern about how and where electronics are being reused or recycled and the possible health and environmental risks that may result from inappropriate recycling. There is a growing effort in Indiana and the nation to be sure that these materials are properly handled. Indiana government, private, and non-profit organizations have come together this year to identify the current electronics scrap management infrastructure in the state and to find ways to improve the ability to and manner in which electronics scrap is handled. Energy and Recycling Office Recycling Program grants and loans can be applicable to electronic recycling projects. The Office continues to work with other state, private and non-profit organizations to find ways to keep electronic waste out of Indiana landfills.

PLASTICS:

The recycling of plastics and manufacturing of products from recycled plastic compounds continues to be a growing area. As more and more products and packages are shifted away from other materials and into plastics, the need for recycling scrap industrial materials and post-consumer discards continues to grow. Indiana's strong automotive parts industry uses and recycles a significant amount of plastics. In addition, recycling technologies have opened a market for plastic and rubber composite material as well as plastic and wood composite material in recent years. Several composite material manufacturers in the state are thriving. More recycled plastic processors have also recently opened in the state. As the industry advances, the state is seeing more advanced recycled polymer combinations develop, allowing for a broader range of products to be made from recycled materials. Mixed plastic scrap streams continue to be challenging for manufacturers to use.

A developing realm of plastics recycling involves plastic scrap from electronics casings. The types of plastics used in electronics are widely varied, may be mixed when collected, may be complex polymers, and may contain flame-retardants

or hazardous materials. These factors make separating and recycling these plastics challenging, and Indiana is working to find solutions to these issues that would allow for more recycling and remanufacturing of these materials. Nationally, an effort is underway to encourage electronics manufacturers to not only use more easily-recycled plastics in their products, but also to produce them with recycled content and make products more durable and with replaceable parts.

MIXED GLASS:

Long-term market shifts away from glass and toward other types of containers make recyclable glass difficult to market. In addition, specialized glass wastes, such as automobile window glass, continue to lack strong markets. The Energy and Recycling Office has worked with other government agencies, private businesses, and local governments on projects to encourage civil engineering uses for recycled glass to be piloted. Civil engineering uses may include using glass in asphalt, as fill material, as additives to road paint, as sandblasting material, as decorative landscaping material, and as sand substitute.

CONSTRUCTION AND DEMOLITION DEBRIS (C&D):

A significant amount of waste is generated in the construction and demolition of buildings in Indiana. Every year tons of wood waste, asphalt, concrete, brick, shingles, cardboard, wallboard, vinyl siding, carpet scrap, piping and wiring end up in Indiana landfills unnecessarily. Education and business investment is necessary to move this material back into use. Better collection efforts and willingness by recyclers/brokers/end users to take this material is necessary to increase C&D debris diversion from landfills. These efforts are happening across the state, and the interest is growing.

TIRES:

Approximately six million scrap tires are generated in Indiana every year. Still more tires remain in piles that are targeted for clean up. Finding end-use options for these tires continues to be a challenge. Many tires are still being shredded and landfilled because of the large supply of tires and smaller amount of end uses. More industries are needed that successfully recycle and use large quantities of tires. The Energy and Recycling Office has been working with the Indiana Department of Transportation and the Indiana Department of Environmental Management to encourage the use of tire chips in civil engineering projects, both by the State and by local governments and private business. The Office has also funded several projects that involve the use of tire chips as feedstock for the creation of rubber or rubber composite products, such as automotive parts and flooring material. These products provide value-added end uses for a priority recyclable material.

INDUSTRIAL BY-PRODUCTS:

Various industries in the state produce non-hazardous, solid by-products from their production process. These materials can be costly to dispose of and often must be placed in special landfills. There are, however, a number of beneficial reuse opportunities for many of these materials, which would allow the producing companies to reduce their disposal costs and keep these materials out of landfills and in economically valuable uses. The paper-producing industry, metals/foundry industry, coal power industry, and cement industry all produce some sort of by-product that can be beneficially reused in some way. Some materials have uses that are approved by state regulatory agencies as accepted uses, others are approved on case-by-case basis. There is an ongoing regional effort, led by the U.S. Environmental Protection Agency Region 5 in Chicago, to bring industry and government together to find ways to safely make it easier for these by-products to be used. The Energy and Recycling Office is currently working on several projects that are researching and testing new ways to use these materials. Foundry sand, coal combustion by-products and cement kiln dust are largely the focus of these projects.

FINANCIAL ASSISTANCE

The Energy and Recycling Office offers financial assistance to encourage reduction, reuse and recycling, as well as the use and manufacture of recycled-content products and industrial feedstocks. The Office's financial programs are administered through the Recycling Promotion and Assistance Fund established to promote and assist recycling throughout Indiana by focusing economic development efforts on businesses and projects involving recycling. The fund is administered by the Recycling and Energy Development Board, a legislatively defined board that consists of 13 members from various related industry sectors and Indiana universities, as well as private citizens (IC 4-23-5.5).

Financial tools available through the Energy and Recycling Office's Recycling Program include the following:

Loans

Recycling Promotion and Assistance Fund (RPAF) Loan

$1 Million RPAF Attraction Loan

Grants

Innovations Grant

Recycled Product Marketing Grant

Recycled-Content Purchasing Grant

Three R's Assessment

All project applications receive rigorous review by the internal Recycling Program Review Team. Projects must meet specific program requirements as defined in approved guidelines. Loans are reviewed for financial, technical and business planning details. Projects that meet the required criteria are taken to the Recycling and Energy Development Board (REDB) for funding consideration. The REDB closely reviews applications for loans and grants, and approves or denies funding and any subsequent project changes. All approved projects must also meet the contingencies that the REDB places upon them and must remain in good standing with the Indiana Departments of Revenue and Environmental Management to receive funds.

Loans and grants are monitored. Loan projects receive several site visits: one before consideration by the REDB, one early in the implementation phase, and at least one annually through the life of the loan (seven years). Grant applications also receive a number of site visits, depending on the size of the grant and length of the project.

Sometimes approved projects do not receive funding because they are not able to meet the contingencies placed upon them by the REDB or because their business plan cannot be implemented as expected and the project does not move forward. Occasionally, businesses that received funding are moved or closed. For example, a fire may cause a company to close, or decisions made by a parent company may close or move the project to a different location.

FINANCIAL ASSISTANCE

LOANS TO INDIANA BUSINESSES: EQUIPMENT PURCHASES TO FACILITATE RECYCLING

Four projects were approved in fiscal year 2002–2003 for loans totaling $995,000, leveraging over $995,000 in private investment. These projects will divert more than 63,500 tons of material from disposal, save almost 9 Mmbtu's and create 26 new jobs.

Loan funds are available through two programs:

- **Recycling Promotion and Assistance Fund (RPAF):** The cornerstone of the Recycling Program's financial tools continues to be the RPAF. This economic development tool provides zero-percent interest loan financing up to $500,000 on the purchase of equipment that is used to reduce waste generated, prepare material for use as an industrial feedstock or make recycled-content products. The loans require a one-to-one match.

- **$1 Million RPAF Attraction Loan:** This loan provides up to $1 million in zero-percent interest loan financing on equipment purchases to successful businesses expanding their markets for priority materials. This level of funding is an economic development tool that can attract successful businesses to expand in Indiana. Recycling businesses and technologies have been developing around the world for the past 10 to 15 years. As these companies expand, Indiana is in a prime location to capitalize on their successes. Indiana is centrally located to many cities and industries, boasts an expansive transportation system, and has a strong existing industrial recycling infrastructure. The $1 Million RPAF Attraction Loan projects are lower risk and have a high recycling return because they provide markets for hard to recycle materials.

Since the program began in 1991, over 60 loans have been awarded. There are currently 23 active RPAF Loans totaling over $6,815,402. These are leveraging over $78,000,000 in private funds, diverting over 1.5 million tons of waste from landfills and creating approximately 200 new jobs for Indiana.

LOANS APPROVED IN FISCAL YEAR 2002–2003:

GreenCycle of Indiana (Whitestown, Ind.): Awarded $80,000 expanded RPAF Loan for equipment to produce recycled mulch at the company's Whitestown, Ind., facility. This is the company's second RPAF Loan award.

American Manufacturing and Recycling, Inc. (Terre Haute, Ind.): Awarded $119,497 RPAF Loan for equipment necessary to expand the company's wood recycling operations, which includes pallet reuse and remanufacturing and the conversion of scrap particleboard into new endboards for packaging.

G&S Metal Consultants, Inc. (Wabash, Ind.): Awarded $600,000 expanded RPAF Loan for equipment used to recycle 356 alloy high-grade aluminum for the automotive industry. This equipment will allow the company to recycle 100,000 tons per year of aluminum. This is the company's second RPAF Loan award.

Anco Products, Inc. (Elkhart, Ind.): Awarded $165,000 expanded RPAF Loan for equipment to recycle waste fibrous glass (e-glass) into several types of insulation products. This is the company's second RPAF Loan award.

FINANCIAL ASSISTANCE

Table 1: Companies with Active* RPAF Loan-Funded Projects

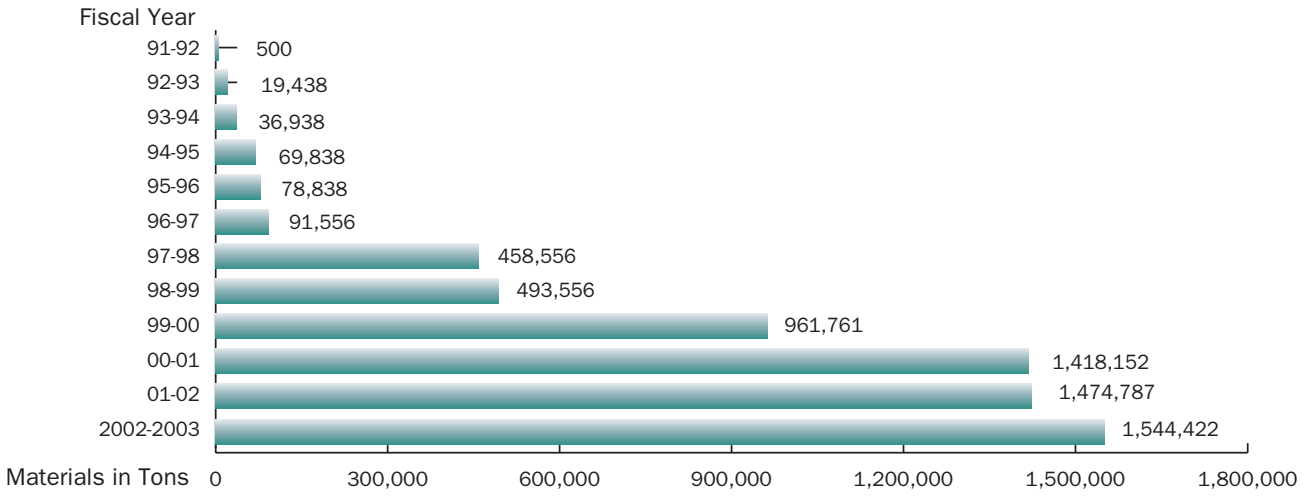
Loan Recipient	County	Loan Approval Amount (projected)	Material Recycled Annually	New or Retained Jobs (projected)	Materials Recycled
Fiscal Year 2002–2003					
GreenCycle of Indiana, Inc.	Boone	$80,000	21,000 tons	3	pallets, brush
American Recycling a Manufacturing, Inc.	Vigo	$119,497	4,550 tons	10	pallets
G&S Metal Consultants, Inc.	Wabash	$600,000	36,000 tons	10	aluminum
Anco Products, Inc.	Elkhart	$165,000	2,000 tons	3	fibrous glass
Fiscal Year 2001–2002					
Dekalb Molded Plastics, Inc.	DeKalb	$475,000	1,225 tons	12 new	rubber, plastic
G&S Metal Consultants, Inc.	Wabash	$388,000	42,000tons	5 new	aluminum
GDC, Inc.	Elkhart	$455,833	460 tons	9 new	rubber
Max Katz Bag Company, Inc.	Marion	$500,000	700 tons	11 new	plastic, film
Fiscal Year 2000-2001					
Anco Products, Inc.	Elkhart	225,623.20	2,000 tons	4 new	fibrous glass
Envirotech Extrusions, Inc.	Wayne	$563,000	2,100 tons	22 new	rubber, plastics
GE Plastics & Rubber, LLC	Marion	$323,000	6,500 tons	13 new	rubber, plastic
GreenCycle of Indiana, Inc.	Marion	$202,150	9,832 tons	2 new	wood
Harris Material Exchange, Inc.	Adams	$225,000	29,000 tons	8 new	plastics
Lake County Transfer, Inc.	Lake	$202,274	26,060 tons	3 new	wood and vegetable scrap
OmniSource Corp.	Allen	$352,168	5,200 tons	4 new	aluminum, steel
Fiscal Year 1998-1999					
VIM Recycling Inc.	Elkhart	$416,000	35,000 tons	5 new	wood
Fiscal Year 1997-98					
G-P Gypsum Corporation	Jasper	$500,000	350,000 tons	65 new	synthetic gypsum
Harris Material Exchange, Inc.	Adams	$150,000	17,000 tons	20 new, 11 retained	plastic
Fiscal Year 1996-97					
HT Aluminum Specialties, Inc.	LaPorte	$209,165	4,000 tons	10 new	aluminum
Max Katz Bag Co., Inc.	Marion	$500,000	1,000 tons	56 retained	plastic

FINANCIAL ASSISTANCE

Loan Recipient	County	Loan Approval Amount (projected)	Material Recycled Annually	New or Retained Jobs (projected)	Materials Recycled
Fiscal Year 1995-96					
Envirotech Extrusions, Inc.	Wayne	$479,000	4,000 tons	32 new, 31 retained	crumb rubber & plastic
Fiscal Year 1994-95					
Industrial Pallet Corp. - American Fibertech	Tippecanoe	$165,000	16,300 tons	16 new	wood
Fiscal Year 1992-93					
Tree Pro	Tippecanoe	$75,000	103 tons	10 new	plastic

*Active projects are those that have been approved and are currently conducting the loan project or have conducted the project and are repaying the loan.

PROJECTED ANNUAL TONS OF RECYCLABLES DIVERTED FROM DISPOSAL AS A RESULT OF APPROVED RPAF LOAN PROJECTS



FINANCIAL ASSISTANCE

GRANTS TO ENCOURAGE INNOVATION IN WASTE REDUCTION AND BUYING RECYCLED

The Recycling Promotion and Assistance Fund Grant Program encourages Indiana businesses, manufacturers and local government entities to find new ways to reduce waste and increase recycling and the use of recyclables. Companies in all sectors, from manufacturing to retail, can make a positive impact on reducing the amount of material going to landfills. Since its inception in 2000, the Grant Program has assisted 82 businesses and local government entities by granting $990,275 to assist in assessing their waste streams, developing innovative uses for secondary materials, marketing recycled-content products produced in Indiana, purchasing recycled-content products and developing new markets for these products. More than 60 communities around the state have directly benefited from these grants. In fiscal year 2002–2003, 27 projects were approved totaling $310,037. All grants require a one-to-one funding match.

In addition, the grant program has created successful partnerships between the private sector, local and state governments and educational institutions on many recycling and waste reduction projects. Purdue University, the Indiana Department of Transportation and Cinergy, Inc., have partnered on a project to use coal combustion by-products in transportation-related construction. Brooks Construction Company, Inc., has partnered with the Indiana Department of Natural Resources to create the first bike and pedestrian path in the state made with recycled glass from local markets. Such projects promote a united effort to create new uses and markets for priority recyclables in Indiana and allow resources and knowledge to be pooled for greater success.

Types of grants available include:

- The **3R's Grant** provides funds (up to $6,000) to companies to carry out recycling audits of facilities to determine what is in the waste stream and investigate more efficient operating procedures that will reduce waste and/or increase the use of recycled materials.
- The **Innovations Grant** funds research and development projects (up to $100,000) on products or processes that reduce waste or utilize a recyclable material.
- The **Recycled Product Marketing Grant** provides funds (up to $30,000) to recycled-content product manufacturers for the development or implementation of a marketing campaign to promote use of the product.
- The **Recycled Product Purchasing Grant** provides grants (up to $5,000) to local Indiana government entities for the purchase of recycled-content products as a trial or demonstration. The products serve as educational tools for the public and the government entity.

FINANCIAL ASSISTANCE

RECYCLING MARKET DEVELOPMENT PROGRAM GRANTS

Approved Fiscal Year 2002–2003

Innovations Grant

(Awards of up to $100,000)

Organization Name	County	Amount	Innovations Project Description
Ashley Industrial Molding, Inc.	Dekalb	$24,000	Research/test fiberglass recycling options
Lehigh Cement Company	Marion	$20,000	Research on ways to reclaim and reuse cement kiln dust

Recycled Product Purchasing Grants

(Awards of up to $5,000)

Organization Name	County	Amount	Recycled-Content Product(s)
Carroll County Soil and Water Conservation District	Carroll	$1,481	Recycled plastic tables, planters
Cass County Solid Waste Management District	Cass	$5,000	Recycled plastic lumber for gazebo construction
City of Hammond	Lake	$1,071	Recycled-content decking
City of Lawrence Fire Department	Marion	$3,258	Recycled plastic cribbing
City of Warsaw	Kosciusko	$5,000	Recycled–content recycling bins
Dearborn County Solid Waste Management District	Dearborn	$5,000	Recycled-content signs
Greencastle Parks and Recreation Department	Putnam	$5,000	Recycled-content recreational products
Jackson County Solid Waste Management District	Jackson	$5,000	Recycled lumber for boardwalk
Lake County Parks and Recreation Department	Lake	$5,000	Recycled plastic furniture
Lake County Solid Waste Management District	Lake	$2,306	Recycled trash and recycling receptacles, recycled planters
LaPorte Community Schools	LaPorte	$5,000	Recycled tables, benches, signs
Martin County Soil and Water Conservation District	Martin	$2,500	Various recycled-content products for display
Rome City/Orange Township Fire Department	Noble	$1,116	Recycled plastic cribbing
Schererville Parks and Recreation Department	Lake	$3,944	Recycled-content car stops

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South Bend Parks and Recreation Department	St. Joseph	$1,762	Recycled-content benches
Sullivan County Commissioners	Sullivan	$5,000	Recycled paper office supplies
Sullivan County Parks and Recreation Department	Sullivan	$5,000	Recycled recreation equipment, recycling bins
Town of Dyer Parks and Recreation Department	Lake	$5,000	Recycled playground equipment
Town of Flora	Carroll	$5,000	Recycled playground equipment
Town of Fowler	Benton	$2,504	Recycled trash and recycling receptacles
Town of Morocco	Newton	$5,000	Recycled playground equipment
Town of Prince's Lakes	Johnson	$4,997	Recycled playground equipment, timbers, mats
Worth Township Fire Department	Boone	$1,449	Recycled plastic cribbing

FINANCIAL ASSISTANCE

LOAN AND GRANT SUCCESS STORIES FOR FISCAL YEAR 2002–2003

The RPAF Loan and Grant funds have promoted the development of new companies and recycling technologies, the expansion of existing companies, the creation of new recycling technologies and the increase in recycled-content purchasing throughout the state. Following are some highlights of successful and innovative loan and grant projects that have been approved or completed this fiscal year.

G&S Metal Consultants, Inc. (Wabash, Ind.)—RPAF Loan

G&S Metal Consultants, Inc., specializes in recycling 356 alloy high-grade aluminum for the automotive markets. The goal of the company is to provide a product that is virtually the same quality as aluminum from primary producers. G&S Metal Consultants was awarded its first RPAF Loan in 2001 to purchase equipment to double their aluminum recycling capacity. Demand for this high-quality recycled material continued to increase, especially as the company became a preferred source of secondary aluminum for Ford Motor Company. The company applied for and was awarded a second RPAF Loan for expansion in 2002. As a result of the second project, the company now has the capacity to recycle almost 40,000 additional tons per year of aluminum, and employs close to 100 Hoosiers.

Dekalb Molded Plastics (Butler, Ind.)—RPAF Loan

Dekalb Molded Plastics embarked on a venture to produce guardrail bumpers from recycled plastic and rubber. The design had shown to be lighter to handle, easier to install and longer lasting than its wood counterparts. The company received an RPAF Loan in 2001 to purchase the equipment necessary to manufacture these products. By the end of fiscal year 2002–2003, the company's new product line is running at full force 24 hours a day, seven days a week to produce enough recycled-content guardrail bumpers for the distributor that sells the product. In fact, the company is producing more product than was originally anticipated, citing a production of up to 5,000 units per day. This project will allow the company to divert 7,300 tons per year of plastic and rubber material from landfills. This figure includes 6 million pounds of crumb rubber that will be used in production during 2003. The project has also allowed the company to hire approximately 12 new employees.

Cinergy/PSI (Plainfield, Ind.) in Partnership with Purdue University and the Indiana Department of Transportation—Innovations Grant

Cinergy/PSI of Indiana sought Commerce's Innovations Grant in 2001 as it began to investigate new beneficial ways to reuse the coal combustion by-products (bottom ash and fly ash) generated from its coal-burning power generation. Cinergy partnered with Purdue University and the Indiana Department of Transportation (INDOT) to investigate the use of coal combustion products as a fill material for road embankments. Previous testing has shown that using a mixture high in bottom ash content for this purpose is acceptable to INDOT, but this mixture cannot be supplied in large quantities, so the partners decided to investigate use of a mixture with much higher fly ash content. This fiscal year, the partners successfully completed tests on the material to develop specifications for the construction of the road embankment on Highway 61 in Terre Haute. Actual construction of this embankment began in late fiscal year 2002–2003, and is expected to be completed by early fiscal year 2003–2004. This specific project will use up to 80,000 tons of ash, but results from the project may open the door for reuse of the 640,000 tons of ash generated in Indiana every year that is not already utilized for beneficial reuse.

FINANCIAL ASSISTANCE

Jackson County Solid Waste Management District (Brownstown, Ind.)—Recycled Product Purchasing Grant

The Jackson County Solid Waste Management District, in partnership with the Muscatatuck National Wildlife Refuge in Seymour, Ind., received Recycled Product Purchasing Grant funding to purchase recycled-content plastic lumber to construct a 300'x 6' boardwalk in the refuge. The boardwalk will be completely constructed with recycled content lumber that is derived from post-consumer bottle waste. The Solid Waste District and the Wildlife Refuge decided to use recycled-content plastic lumber not only to divert waste from landfills and seemed an appropriate fit for both groups' focus on conservation, but because the lumber is weather-resistant, requires little maintenance, and is not treated with preservative chemicals. As a result of the project, 20,190 pounds of material will be diverted from landfills.

ECONOMIC IMPACT OF RECYCLING AND REUSE IN INDIANA

EXAMINING BENEFITS OF RECYCLING

Indiana continues to examine waste reduction and recycling that exist in addition to the primary benefit of keeping valuable natural resources out of landfills and reducing the need to extract new resources for the creation of new products. The Indiana Department of Commerce's Energy and Recycling Office acknowledges the economic benefits of recycling and reuse to the state, and works to create jobs and economic growth through the Recycling Market Development Program. The Office also recognizes that waste reduction, recycling and reuse decrease energy consumption and the GHG emissions associated with global warming that result from this consumption. These benefits also bring downstream economic, as well as environmental, benefits to Indiana. Studies and newly developed tools allow us to more fully understand these benefits and allow the Energy and Recycling Office to promote investment in recycling for these reasons.

ECONOMIC IMPACT OF RECYCLING AND REUSE IN INDIANA

In conjunction with the National Recycling Coalition and R.W. Beck, Inc., the Indiana Department of Commerce completed a study of the impact of the recycling and reuse industry on Indiana's economy. The study shows that recycling is working in Indiana – the state has a strong recycling and reuse industry that provides a significant number of jobs and substantial economic activity to Hoosiers. IDOC hopes to update these numbers in the coming year.

According to the Recycling Economic Information Study, completed in 2001 based on 1999 data, the reuse and recycling industry in Indiana

- includes 1,700 establishments;
- employs approximately 75,000 people;
- has a payroll of approximately $3 billion; and
- has annual revenues of $19 billion.

The recycling and reuse industry companies are involved in metals, paper, plastics, glass, organic materials, computers and electronics, tires and other post-consumer and post-industrial scrap. Jobs in this industry involve collection, processing, reuse, remanufacturing, sales, and more.

The economic size of Indiana's recycling manufacturing sector far exceeds the recycling collection, processing and reuse sectors. The collections and processing sectors make up a smaller portion of total employment, but have the very important job of providing feedstock material into the manufacturing and reuse sectors. The recycling manufacturing sector covers a wide range of industries, including metal casters, plastics manufacturers and automobile parts manufacturers. Indiana's recycling manufacturing sector is strong and well diversified. There are local markets for many of the recyclables generated by households as well as the commercial and industrial sectors in Indiana. Recycling of scrap materials feeds directly into building Indiana jobs. Local level public and private investments in collection and processing of recyclables, and public policies favoring recycling and reuse, are supporting larger private-sector investments in downstream processing and manufacturing.

ECONOMIC IMPACT OF RECYCLING AND REUSE IN INDIANA

According to the study, the recycling manufacturing sector in Indiana

- accounts for 63,000 jobs;
- $2.8 billion in payroll;
- $16.8 billion in receipts;
- consists of the highest paying jobs in the recycling and reuse industry; and
- provides 92 percent of Indiana's total recycling and reuse industry tax revenues

Many of our industrial sectors have such a high demand for recovered materials that a significant amount of material is purchased and imported from other states and countries—to Indiana's benefit. Many of these industries' products support other manufacturing jobs in the state or bring profits into the state from the sale of those products outside Indiana's borders. Indiana's economy significantly benefits from this industrial sector in terms of the jobs it provides, the support it gives to the state's manufacturing base and other economic sectors and the tax revenues that flow to the state and local governments.

MIDWEST AS A LEADER IN RECYCLING BUSINESS ACTIVITY

The Mid-America Council of Recycling Officials, a non-profit regional organization of recycling officials of which Commerce is a member, in cooperation with U.S. EPA Region 5 combined data from 14 member states' Recycling Economic Impact studies in order to examine the size and impact of the recycling industry in the Midwestern region of the United States. This data was compared with national REI Study data to determine what impact, as a percentage, the Midwestern recycling industry had on the national recycling industry. The results show that the Midwest is a leader in recycling business activity, and is a great location for the location of recycling businesses and the development of recycling technologies.

The data show that the Midwestern recycling industry contributes

- 33 percent of the total national recycling industry jobs;
- 35 percent of the total national recycling industry wages;
- 20 percent of the total national recycling industry establishments; and
- 35 percent of the total national recycling industry sales.

Efforts to encourage the public and private sectors to expand recycling and reuse assist in maintaining and raising this significant economic activity.

This study of the recycling and reuse industry has been conducted around the nation and in sponsoring states. The methodology for the study was developed and tested by the National Recycling Coalition and the U.S. Environmental Protection Agency, with contract assistance from R.W. Beck. The industry includes 26 industry categories. Data come from existing data (census), survey data and economic modeling. This methodology was peer reviewed and is comparable to similar studies of other industries.

ECONOMIC IMPACT OF RECYCLING AND REUSE IN INDIANA

Direct results provide information on the number of establishments in this industry as well as its employment, wages, revenues and throughput (as available). Indirect effects were estimated for the impact of additional economic activity accruing to establishments that provide goods or services to the recycling and reuse industry. Induced effects were estimated for economic activity from workers spending personal earnings on goods and services. Multipliers were identified for jobs, personal income, industrial output and value added.

The Energy and Recycling Office published a fact sheet for the Indiana Recycling Economic Information Study. This brochure highlights the main findings of the study, as well as the purpose and methodology for the study.

For more information about this study or to obtain a copy of the Indiana Recycling Economic Information Study fact sheet, contact the Energy and Recycling Office at (317) 232-8940.

WASTE REDUCTION AND RECYCLING SAVES ENERGY AND REDUCES GREENHOUSE GAS EMISSIONS

TOOLS FOR DETERMINING ENERGY SAVINGS AND DECREASE IN GREENHOUSE GAS EMISSIONS AS A RESULT OF WASTE REDUCTION AND RECYCLING

Waste reduction and recycling saves energy by eliminating the need to use natural resources and extract virgin materials. Solid waste disposal is a business and community expense. Developing feedstocks from recycled materials saves energy in the manufacturing process; limits energy consumption from extracting virgin materials; and promotes business opportunities, employment and technology innovation. It reduces the need for landfill disposal and thereby decreases landfill methane emissions. These activities assist the state in meeting the goal of 50 percent landfill diversion.

Waste reduction, reuse and recycling reduce the amount of energy consumption and thus reduce GHG emissions as well. If fewer natural resources are used, or if materials are reused or recycled, GHG emissions are reduced because of reductions in energy consumption, landfill methane production, incineration emissions and energy used to extract virgin materials. Reducing the initial consumption of natural resources and reusing materials provides the greatest amount of reduction of GHG emissions.

The U.S. EPA has developed a tool that allows users to calculate the global warming effects from various solid waste management practices. This tool, the **Waste Reduction Model**, calculates and totals GHG emissions of baseline and alternative waste management practices—source reduction, recycling, combustion, composting and landfilling. The model calculates in metric tons of carbon equivalent (MTCE), metric tons of carbon dioxide equivalent (MTCO2E), and energy units (million BTU) across a wide range of material types that compose municipal solid waste.

The following table lists the GHG Emission Factors based on each solid waste management technique for 28 categories of solid waste. Figures show the MTCEs per each ton of the particular solid waste produced by various waste management techniques. Negative numbers indicate a reduction in MTCEs. The data show that source reduction and recycling can significantly reduce the amount of greenhouse gasses associated with the listed wastes as compared to landfilling or combusting those wastes.

The emission factors presented in this table reflect national average landfill gas recovery practices and transportation distances. *(Source: U.S. EPA)*

Greenhouse Gas Emission Factors (MTCE per short ton)

Material	Source Reduction	Recycling	Landfilling,	Combustion National Average	Composting
Aluminum Cans	-2.47	-4.01	0.01	0.02	NA
Steel Cans	-0.79	0.49	0.01	-0.42	NA
Glass	-0.14	-0.08	0.01	0.01	NA
HDPE	-0.49	-0.38	0.01	0.23	NA
LDPE	-0.61	-0.47	0.01	0.23	NA
PET	-0.49	-0.42	0.01	0.28	NA
Corrugated Cardboard	-0.51	-0.71	0.08	-0.19	NA
Magazines/third-class mail	-1.04	-0.74	-0.12	-0.13	NA
Newspaper	-0.81	-0.95	-0.21	-0.21	NA
Office Paper	-0.80	-0.68	0.62	-0.18	NA
Phonebooks	-1.28	-0.91	-0.21	-0.21	NA
Textbooks	-1.23	-0.75	0.62	-0.18	NA

WASTE REDUCTION AND RECYCLING SAVES ENERGY AND REDUCES GREENHOUSE GAS EMISSIONS

Material	Source Reduction	Recycling	Landfilling, National Average	Combustion	Composting
Dimensional Lumber	-0.55	-0.67	-0.10	0.22	NA
Medium Density Fiberboard	-0.60	-0.67	-0.10	-0.22	NA
Food Scraps	NA	NA	0.17	-0.05	-0.05
Yard Trimmings	NA	NA	-0.09	-0.06	-0.05
Grass	NA	NA	0.01	-0.06	-0.05
Leaves	NA	NA	-0.29	-0.06	-0.05
Branches	NA	NA	-0.10	-0.06	-0.05
Mixed Paper, Broad	NA	-0.67	0.10	-0.19	NA
Mixed Paper, Residential	NA	-0.67	0.07	0.18	NA
Mixed Paper, Office	NA	-0.83	0.15	-0.17	NA
Mixed Metals	NA	-1.74	0.01	-0.26	NA
Mixed Plastics	NA	-0.41	0.01	0.25	NA
Mixed Recyclables	NA	-0.76	0.05	-0.17	NA
Mixed Organics	NA	NA	0.03	-0.06	-0.05
Mixed MSW	NA	NA	0.07	-0.04	NA

Materials that account for over 64 percent of national Municipal Solid Waste are those that can most easily be recycled or composted, including aluminum cans, steel cans, glass, HDPE, LDPE and PET plastics, corrugated cardboard, magazines, newspapers, office paper, phone books, textbooks, lumber, fiberboard, food, and yard trimmings. Reducing demand for and use of these products as well as using recycled feedstocks in the production of similar products can decrease the need for raw materials, thus decreasing the accompanying energy use and GHG emissions.

RECYCLED-CONTENT PRODUCTS ALSO SAVE ENERGY AND REDUCE EMISSIONS

In addition to providing tools to calculate energy and emissions savings from recycling and waste reduction, the U.S. EPA's Climate and Waste Program is developing a new Manufacturing and Purchasing Greenhouse Gas (MAP-GHG) tool that allows users to calculate the GHG benefits of using recycled inputs in the materials they manufacture and/or purchase. This tool is currently being finalized, and will help show another benefit of manufacturing and purchasing recycled-content products.

For more background on EPA's analysis of climate change and waste management, see the EPA report entitled: Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Greenhouse Gas Emissions and Sinks, available at: **http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteToolsReports.html.**

This report serves as the basis for the emission factors used in the MAP-GHG tool.

Encouraging waste reduction, reuse, recycling and more efficient manufacturing processes can help significantly lower energy consumption and GHG emissions in Indiana. In addition to using recycled materials in the manufacturing process, encouraging energy-efficient and clean manufacturing strategies will also help achieve this goal. Encouraging product redesign to involve less energy use and less waste production should be involved in creating more efficient manufacturing processes. The Energy and Recycling Office programs provide financial and technical assistance to help Indiana businesses take on these improvements.

MARKETS FOR INDIANA RECYCLABLES

Recyclables are commodities in the market, and thus are impacted by the global marketplace. Some recyclable materials are shipped throughout Indiana, across the United States and around the world. Indiana's strong industrial sector provides markets in Indiana for much of our household and industrial recyclables. Similar to other commodities, market prices for recyclable materials fluctuate because of changes in product demand; petroleum prices; and local, national and international economic situations. Periodically, certain materials have enjoyed a high market value, but generally recycling end uses are built on stable low prices. Pricing can influence the amount of material diverted from landfill. It is important to continue to build demand for recyclables.

In fiscal year 2002–2003 market values for several commodities crept up slightly or remained steady. Several industries began to see recovery from the economic downturn, or at least have seen increased export demand.

The following sections discuss the market situation for each of the commonly collected recyclables. Building demand for products made with recycled content will increase these materials' market value over time. Local markets for recyclables reduce transportation costs and pollution and often prove to be more reliable markets.

Commodity Price Market Summaries for Fiscal Year 2002–2003

All prices based on per ton cost. Source: WasteNews (www.wastenews.com)

High/Low Pricing for Fiscal Year 2002–2003

Commodity	Low	High
PAPER		
News 6	$10	$34
News 8	$70	$90
Corrugated	$10	$75
Residential Mixed	$0	$0
Sorted Office	$10	$40
METALS		
Steel Cans	$40	$75
White Goods	$40	$75
Aluminum Cans	$500	$700
GLASS		
Flint Glass	$15	$30
Amber Glass	$5	$18
Green Glass	$0	$0
PLASTIC		
PET	$120	$260
Natural HDPE	$280	$360
Colored HDPE	$140	$260
RUBBER		
Tires	$100	$75

MARKETS FOR INDIANA RECYCLABLES

PAPER

Domestic paper stock markets, which last year suffered from low demand, have solidified this fiscal year. A slight rise in domestic use coupled by exports have contributed to the upward price movement. As a result of last year's mill downtime and closures, the supply of recovered fiber has been reduced, which has led to steady pricing. Demand for mixed paper, both domestically and abroad, also continues to rise. Experts foresee the recovered fiber market to move forward strongly in the coming year as mills become more competitive and purchase material at higher prices.

PLASTICS

Export demand in fiscal year 2002–2003 has increased, which has helped keep pricing steady. On the Polyethylene Terphthalate (PET) side, the main challenge for the plastics industry is increasing the amount of recovered PET collected as increased demand continues to rise. The PET recycling rate has actually dropped recently, at the same time that major PET bottle manufacturers are increasing the amount of recycled-content in their products. Prices for High Density Polyethylene fluctuated in fiscal year 2002–2003, rising in late 2002, dipping in early 2003 and rising again in mid 2003.

GLASS

Prices for flint and amber glass dropped slightly in fiscal year 2002–2003, while green glass prices held steady. The number of domestic glass container manufacturers has dropped sharply in the past 20 years, thus reducing the market for container glass. Low demand, high handling and processing costs, and lack of strong end markets for the glass has made the material less profitable for municipalities and companies alike to recycle, though there are significant energy benefits to using recycled glass in the manufacturing process. Another issue of concern to potential glass recyclers is contamination from single-stream recycling. As the use of glass in container manufacturing decreases, new alternative end markets continue to be developed in order to create an end use for glass scrap. These include use of glass cullet in road construction, for decorative landscaping, and as sand substitute.

ALUMINUM

Price for aluminum scrap rose slightly and held steady in fiscal year 2002–2003, partly due to the fact that reduced scrap generation is leading to competition. Export demand for scrap is also high. This competition for scrap, however, has kept profit margins tight as it becomes less cost effective to collect, sort, and purify scrap. Industry data show, however, that the coming year may present a potential for price upturn due to the increased use of aluminum in the transportation industry. Aluminum continues to face competition from plastic, however, in the area of beverage containers.

FERROUS AND OTHER METALS

The steel industry in the United States is finally showing some profitability, according to the Institute of Scrap Recycling Industries. The industry notes that electric arc furnace steelmakers have helped to keep the U.S. steel industry competitive. The local steel industry, however, is not positive that the coming fiscal year will necessarily bring an upturn, as the economy and demand from the auto and manufacturing sectors may fluctuate. There has been elevated demand in ferrous scrap, leading scrap dealers to become more profitable, but this trend does not necessarily make the steel mills more profitable as well. In fact, as scrap prices rise, steel mini-mills, which use large amounts of scrap steel, may feel the financial burden.

WOOD SCRAP AND PALLETS

In fiscal year 2002–2003, the wood scrap and pallet industry continued to face market development challenges. Indiana is home to more than 1,000 wood scrap producers, whose scrap from sawmills, furniture factories, construction, home maintenance and other facilities creates a significant part of the state's waste stream.

MARKETS FOR INDIANA RECYCLABLES

Pallets and crates are used by nearly every Indiana manufacturer as well as many retailers. There are several existing Indiana companies that can recycle scrap wood by using it for rebuilding pallets, mulching, composting, creating particle board, creating animal bedding or as a feedstock in plastic composite lumber. One of these companies received IDOC funding to expand their capacity this year. There are not enough of these operations in the State, however, to successfully divert the large amount of wood waste that is landfilled or incinerated each year in Indiana. Continued work to expand these markets and create successful wood recycling infrastructures is needed to decrease this waste stream in Indiana.

CONSTRUCTION AND DEMOLITION DEBRIS

Construction and demolition (C&D) debris continues to be a significant part of Indiana's waste stream. The United States Environmental Protection Agency estimates that in 1996, more than 136 million tons of building-generated C&D debris was generated by both the commercial and residential sectors. Main C&D components are gypsum wallboard, wood, vinyl siding, carpet, piping, wiring, glass, brick, stone, asphalt and metals. While many of these components can be and are being easily recycled, the majority are still being landfilled. Wide swings in commodity prices and marketability sometimes affects the C&D scrap streams. Significant work on collection strategies and development of successful end-markets is needed in order to decrease the amount of C&D Debris going to Indiana landfills. With the momentum in the Green Building movement both nationally and in Indiana, and with continuing developments in technology related to C&D recycling, Commerce will continue to sponsor projects that will advance C&D markets.

INDUSTRIAL SOLID WASTE BY-PRODUCTS

Several industries produce large amounts of single non-hazardous solid waste streams. These industrial by-products include coal combustion ash, foundry sand, cement kiln dust, slag, and other substances. These materials often have the potential for beneficial reuse as aggregate, fill, or raw material for a manufacturing process. An effort is underway in the Midwest to bring industry and government sectors together to discuss how to overcome barriers to and increase the occurrences of beneficial reuse of these materials. The Energy and Recycling Office continues to fund projects that help develop markets for industrial by-products in Indiana in order to divert this material from landfills and keep it circulating in the commodity market. This year, approved projects include researching how to reclaim and reuse cement kiln dust and researching uses for fiberglass material from the manufactured housing industry.

Coal Combustion Materials

Indiana consumes over 70 million tons of coal annually, according to the United States Department of Energy. Coal combustion by-products present a waste management concern to both solid waste officials and state utilities. These materials, such as fly ash and bottom ash, can be used as aggregate for many types of projects, including cement manufacturing, road base and subbase construction, structural fill construction, and as a soil amendment. Markets for coal combustion projects continue to develop as possible uses are tested and proved. A project funded by the Energy and Recycling Office to study the use of coal combustion by-products in road construction was near completion at the end of fiscal year 2002–2003. Other markets for this material need to be explored, and potential end-users need to be educated on the acceptable uses.

Foundry Sand

More than 120 foundries in Indiana use sand in their casting processes. This sand is either disposed of in landfills or reused. Nationwide, over 100 million tons of foundry sand is used and reused annually. As Indiana's foundry

strive to become more efficient and competitive, they look to reduce the amount of sand they must acquire as well as the amount of sand they dispose of. Redesign of the casting process and improved sand reclamation technologies has allowed many foundries to reduce the amount of sand they dispose of. Many foundries look for ways to reuse their spent sand. Foundry sand has been proven to be successfully used in road subbase, grout and mortar, construction fill, cement manufacturing, flowable fill, highway barriers, landfill daily cover, and pipe bedding applications. Finding and proving alternative uses in Indiana will help lower disposal costs for Indiana foundries and allow them to be more competitive. The Energy and Recycling Office has funded two research projects that are studying new ways to reuse and recycle foundry sand.

TIRES AND RUBBER

Scrap tires continue to be a major solid waste issue in Indiana. The scrap tire market continues to be driven more on supply than demand. As was evident with the large tire fire at the CR3 tire recycling facility in Muncie, Ind., tire processors and end-users must take care to balance their on-hand supply with product demand in order to remain safely within regulatory compliance. This event also demonstrated the need for the state to develop more viable end-markets for tires. An estimated 6 million scrap tires are produced every year in Indiana, with still more sitting in existing tire piles. Prices have stayed low this year, though a slight upswing occurred in early 2003. While scrap tires may be recycled into rubber-based products and used in civil engineering projects, some of the available markets have not taken hold in Indiana. Other uses that constitute large end markets in other states - including the use of tire shreds in septic and drainage systems and as Tire Derived Fuel - still need to be developed and proven in Indiana in order to open these potentially large markets in the state. The State has and continues to participate in pilot projects to use tires in civil engineering projects, such as with road construction and septic systems. The Energy and Recycling Office has several ongoing projects involving the use of crumb rubber from scrap tires as feedstock to create recycled-rubber products, such as sheeting and automotive parts.

PARTNERSHIPS AND COOPERATIVE ASSISTANCE

The Energy and Recycling Office works with local, state and national partners to assist in waste reduction and recycling market development. Through these connections we ensure that Commerce programs reflect state priorities and meet the needs of market development. Some of these partners include the following:

Indiana Department of Commerce

- Economic Development Division
- Office of Community Assistance
- Office of the Ombudsman
- Regional Offices

Indiana Department of Environmental Management

- Office of Pollution Prevention and Technical Assistance
- Office of Land Quality

Indiana Department of Administration

- Greening the Government Program

Indiana Department of Transportation

- Materials and Tests Division

Indiana Local Economic Development Organizations
Indiana Solid Waste Management Districts
Indiana Recycling Coalition
Mid-America Council of Recycling Officials
National Recycling Coalition
United States Environmental Protection Agency (Region 5)
Scrap Tire Management Council
Foundry Industry Recycling Starts Today
Various industry associations

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